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Class – B.Sc I Sem.-2
Subject – Inorganic Chemistry-II
Paper – Inorganic Chemistry-II

Time Allowed : 3 Hours

Maximum Marks : 35

PART A

Note:- Attempt All questions. Each question carries one mark.

1. What is inert pair effect?
2. Molecular nitrogen is not particularly reactive. Why?
3. Draw structure of EDTA.
4. What is the reason for diagonal relationship?
5. Why does iodine dissolve in KI solution?
6. What are polymers?
7. Why do transition metals exhibit various oxidation states?
8. Which of the oxide of manganese will be most acidic.

MnO , Mn_2O_3 , MnO_2 , Mn_3O_4 , Mn_2O_7 .

PART-B

Note:- Attempt Two questions from each section.
Each question carries 4.5 marks.

SECTION-I

9. (a) What is inorganic benzene? Why is it called so?
Draw its structure.
- (b) How does the acidic nature of oxy-acids of chlorine differ?
(2, 2½)

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10. (a) H_3FC_2 molecule contains three H atoms but it is dibasic in nature. Explain giving its structure.

(b) Account for the fact that BF_3 is weak Lewis acid. (2, 2½)

11. (a) How is diborane prepared in laboratory? Draw its structure.

(b) Graphite is good conductor of electricity but diamond is not. Explain. (2, 2½)

SECTION-II

12. (a) What are crown ethers and cryptates? Write their unique characteristics.

(b) Why are alkali metals stored in kerosene oil and not in ethanol?

13. (a) What is the role of alkali metal ions (Na^+ , K^+) in biological systems.

(b) Why are alkali metals strong reducing agents? (2½, 2)

14. (a) What are Carbides? Give one example of each type of the Carbide.

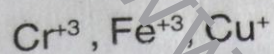
(b) What are silicones? How will you prepare silicones? (2½, 2)

SECTION-III

15. (a) Cu^{+2} ions are coloured and paramagnetic while Zn^{+2} ions are colorless and diamagnetic. Explain.

(b) Which should be better oxidising agent Co^{+2} or Co^{+3} in water. (2½, 2)

16. (a) Calculate the magnetic moment for the following ions :



(b) Why do transition elements in Zero and lower oxidation state form complexes with weak ligands like CO, NO, O_2 , PR_3 (2½, 2).

17. (a) Calculate the number of electrons in Sc^{2+} , Cu^{2+} , Ni^{2+} , Fe^{3+}

(b) Why do transition elements exhibit the tendency for complex formation? Explain with suitable examples. (2, 2½)
